

## REMARKS

Favorable reconsideration and allowance of the claims of the present application are respectfully requested.

Before addressing the specific grounds of rejection raised in the outstanding Office Action, Applicants have amended the claims in a manner as shown above. Specifically, Applicants have amended Claim 1 by incorporating the subject matter recited in Claims 5 and 10 therein. Consequently, Applicants have cancelled Claims 5 and 10 without prejudice. Moreover, Applicants have amended Claims 17-19 to conform those claims to presently amended Claim 1. Furthermore, Applicants have added a new Claim 24. Support for newly added Claim 24 is found at originally filed Claims 1, 5, 10 and 12. Since the above-mentioned amendments to the claims are fully supported by the originally filed application, entry thereof is respectfully requested.

In the present Office Action, Claims 1-23<sup>1</sup> stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over WO 97/24420 to Barnicki et al. ("the '420 publication") in view of U.S. Patent No. 6,423,857 to Copeland et al. ("the '857 patent").

In response, Applicants submit that the amended claims of the present invention are not rendered unpatentable by the disclosure of the '420 publication and the '857 patent since the applied references, either alone or combined, fail to teach or suggest the claimed process for preparing one or more purified fatty acids.

Specifically, with respect to the primary reference, the '420 publication, applicants submit that there are several distinctions between the process claimed in the present application and the prior art process disclosed in the '420 publication.

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<sup>1</sup> It appears that the Official Action omits Claim 23.

First, the oil and/or fats being treated by the process claimed in the present application have a phosphorus content below 200 ppm. In contrast, applicants submit that not only there is no teaching or suggestion in the '420 publication that the oil and/or fats being treated by the process have a phosphorus content below 200 ppm, the same reference is further removed from the present application because it teaches that the oil and/or fats treated by the process is phosphorus-rich, see page 2, lines 3-7 and 18-24; page 3, lines 1-3; page 6, lines 2-6 and 16-17; page 14, line 5 (Example 1); page 15, line 14 (Example 2); and page 18, line 19 (Example 7). Therefore, Applicants submit that the '420 publication teaches away from the present application.

Second, Applicants have amended Claim 1 by introducing the transitional phrase "consisting essentially of" which limits the scope of the claim to the specified steps and any others that do not materially affect the basic and novel characteristics of the claimed invention. *In re Herz*, 537 F.2d 549, 551-552, 190 USPQ 461, 463 (CCPA 1976). In this regard, Applicants submit that the heat-treating step in a thermal pre-treatment unit recited in amended Claim 1 of the present application is to reduce the monoglyceride content in the crude fatty acid mixture. This thermal pre-treatment obtains free fatty acids with good color quality and color stability in good yield because unwanted monoglyceride are converted into di- or triglycerides which can be easily separated in the subsequent distillation step. See page 9, line 29 to page 10, line 29. In contrast, the heat-treating step disclosed in the '420 publication is to convert sterols present in the crude fatty acid mixture to sterol fatty acid esters. See page 6, lines 24-27. Furthermore, it is noted that a substantial amount of fatty acid is lost in such step due to the phospholipids and the formation of sterol esters. See page 4, line 24 to page 5, line 8; and page 1, line 29 to page 2,

line 8. As such, the heat-treating step disclosed in the '420 publication causes significant loss of fatty acid yield.

In view of the above remarks, it is obvious that the heat-treating step disclosed in the '420 publication would materially affect the basic and novel characteristics of the present invention. As such, Applicants submit that the '420 publication does not teach or suggest the thermal pre-treatment step as presently claimed.

Third, Applicants submit that the '420 publication fails to teach or suggest that the composition of crude fatty acids obtained from the thermal pre-treatment step comprises at least 80% by weight (wt%) of free fatty acids.

Fourth, Applicants submit that the '420 publication fails to teach or suggest that the composition of purified fatty acids obtained by the distilling step comprises below 0.5% by weight of monoglyceride.

With respect to the secondary reference, the '857 patent, it teaches a method for recovering free fatty acids during purification of vegetable oil. See column 1, lines 12-13. Applicants submit that none of the above-described deficiencies of the primary reference are disclosed in the '857 patent. Therefore, the combination of the cited references fails to teach or suggest the process claimed in the present application.

Furthermore, applicants submit that none of the cited references appreciate the surprising and superior result obtained from the process claimed in the present application. Specifically, the present application directs to an economically feasible industrial process to produce free fatty acids with good color quality and color stability in good yield. See page 5, lines 10-22; and page 17-19 (examples 1-5). In this regard, applicants submit that the hydrolysis step disclosed in the '420 publication involves the use of a considerable amount of chemicals,

such as bases, acids, etc., and it also produces large amounts of waste stream. Moreover, such a hydrolysis step is often performed as a batch process. Furthermore, in the heat-treating step disclosed in the '420 publication, a substantial amount of fatty acid is lost due to the phospholipids and the formation of sterol esters. See page 4, line 24 to page 5, line 8; and page 1, line 29 to page 2, line 8. Therefore, the process disclosed in the '420 publication is not economical feasible for the industrial preparation of free fatty acids with good color quality and color stability in good yield.

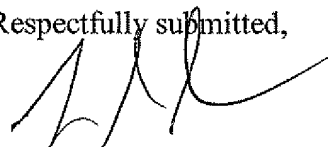
In the present application, applicants have made a surprising finding that the heat-treating step recited thereof has several advantages: (1) converting the monoglycerides to higher boiling compounds, mainly di and triglycerides, and thus help to remove the content of monoglycerides in the final fatty acid product in the subsequent distillation step. Such removal has a significant impact because the monoglycerides substantially influence the performance, the color quality and the color stability of the final fatty acid product; and (2) additional reactions that may also take place during the thermal pre-treatment step are the polymerization and/or decomposition reactions of (reactive) colored bodies. Decomposed colored bodies can be collected as separate fractions during the subsequent distillation step, whereas polymerized coloured bodies remain in the residue after distillation. See page 9, line 29 to page 10, line 26.

In view of the above remarks, the conclusion is compelling that the present application is indeed non-obvious over the cited references.

The rejection under 35 U.S.C. § 103 has been obviated; therefore reconsideration and withdrawal thereof are respectfully requested.

Thus, in view of the foregoing amendments and remarks, it is firmly believed that the present case is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'LS Szivos', written over the words 'Respectfully submitted,'.

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